440G-LZ Guard Locking Switch Installation Instructions

Original instructions in English

ATTENTION: Read this document and the documents listed in the Additional Resources section about installation, configuration and operation of this equipment before you install, configure, operate or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Additional Resources

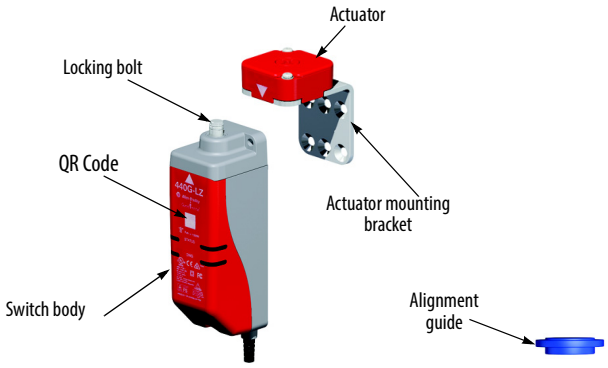
The QR Code on the switch provides a link to the 440G-LZ Guard Locking Switch User Manual (440G-UM001A-EN-P).

Resource	Description
440G-LZ Guard Locking Switch User Manual	440G-UM001A-EN-P
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.rockwellautomation.com/products/certification	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Introduction

ATTENTION: Do not attempt to install this device unless the installation instructions have been studied and understood. This document acts as a guide for a typical installation and is available in some languages at www.rockwellautomation.com/literature. Select the publication language and type "440G-LZ" in the search field. A full user manual is also available.



This 440G-LZ Guard Locking switch is for use on guards that are engineered so as to be rigid without sag. A separately mounted latch (e.g. magnetic, mechanical) and mechanical stop is required.

Installation must be in accordance with these instructions and must be carried out by qualified personnel.

ATTENTION: After installation, ensure that there is no possibility of lifting the actuator over the extended locking bolt. Adherence to the recommended maintenance instructions forms part of the warranty.

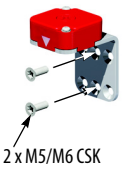
This device is intended to be part of the safety-related control system of a machine. Before installation, a risk assessment must be performed to determine whether the specifications of this device are suitable for all foreseeable operational and environmental characteristics of the application. Refer to the Specifications for certification information and ratings.

Use appropriate screws, bolts, or nuts fitted by tools to mount the switch and actuators to avoid the risk of tampering. Do not over torque the mounting hardware.

Mounting

Switch body

Actuator



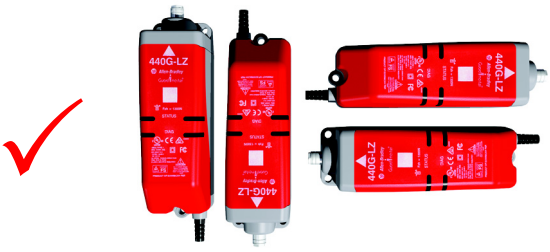
For proper installation, a minimum of two fasteners must be used, at least one of which must be fitted to the top row of holes, closest to the bend in the actuator mounting bracket.

ATTENTION: For the switch, actuator and actuator mounting bracket:

- Only use the designated mounting holes.
- Never drill or use to support other structures such as conduit, cable ways, or other hardware.

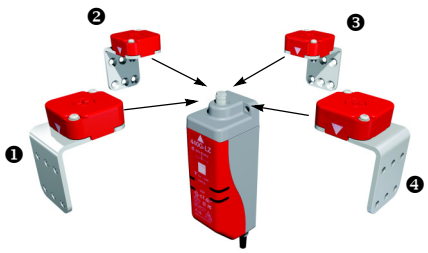
Installation Considerations

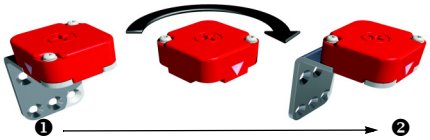
Orientation of assembled switch



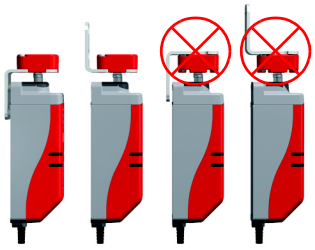
Actuator setting

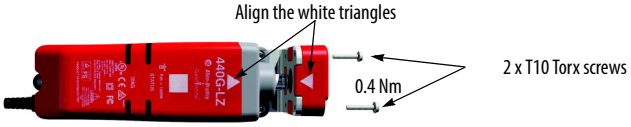
Four directions of approach.





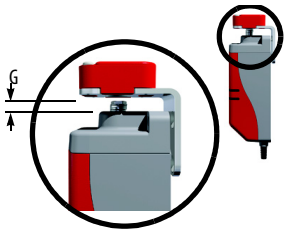
The locking bolt must always enter the actuator mounting bracket first.



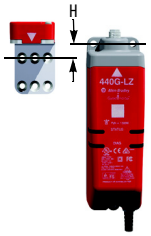


Actuator mounting (Three methods)

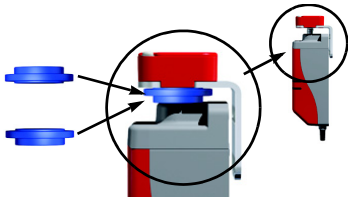
1. By setting gap "G"
   2.5 mm (0.09 in.)
   [0…5 mm (0…0.19 in.)]



2. By mounting hole alignment"H"
   6.5 mm (0.25 in.)
   [4…9 mm (0.15…0.35 in.)]

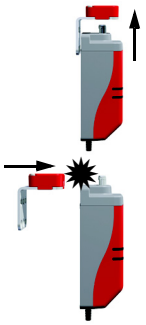


3. By use of the Alignment Guide



ATTENTION: After installation, ensure that there is no possibility of lifting the actuator over the extended locking bolt.

ATTENTION: After installation, ensure that there is no possibility of collision when the actuator approaches the switch body.



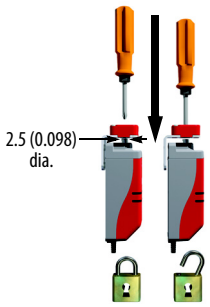
IMPORTANT It might be easier to achieve actuator alignment by mounting only the actuator mounting bracket first to the guard/door and then finally fit the actuator to its mounting bracket.

IMPORTANT It is not possible to mechanically extend the locking bolt during installation, this can only be done electrically (see Commissioning in the user manual).

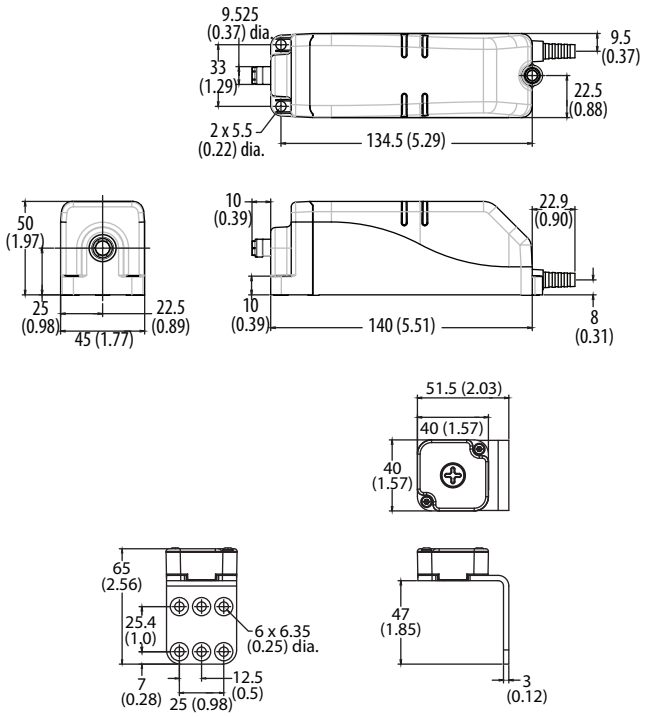
Auxiliary/Manual Release [mm (in.)]

Operation of the auxiliary release will cause a fault condition.

To reset the switch, cycle the power.



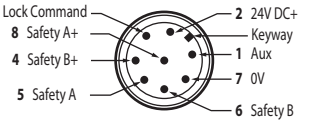
Dimensions [mm (in.)]



Refer to the user manual for configuring Unique Actuators

Connections

8-Pin Micro (M12)



	Color	Function	Pin
8-pin cordset 889D-F8AB-* or cable version	White	Aux	1
	Brown	24V DC+	2
	Green	Lock	3
	Yellow	Safety B+	4
	Grey	Safety A	5
	Pink	Safety B	6
	Blue	Gnd/0V	7
	Red	Safety A+	8

Specifications

Standards	IEC 60947-5-3, IEC 60947-5-1, IEC 61508, EN ISO 13849-1, IEC 62061, ISO 14119, UL 508
Safety Classification: Guard door sensing and lock monitoring	PLe Category 4 per ISO 13849-1, SIL 3 per IEC 61508 and IEC 62061
Functional Safety Data: Guard door sensing and lock monitoring	PFHd: 9.1 x 10^{-10}; Dual channel interlock can be suitable for use in application up to PLe (according to ISO 13849-1) and for use up to SIL3 systems (according to IEC 62061 and IEC 61508) depending on application characteristics. Mission time/PTI: 20 years
Certifications	CE Marked for all applicable EU directives, cULus (UL 508), TÜV, C-tick
Operating Characteristics	
Torque for M5 mounting of switch and actuator mounting bracket	2 Nm max.
Locking bolt insertion for assured locking & holding force	Min. of 5 mm (0.19 in.), max. of 10 mm (0.39 in.)
Locking bolt alignment tolerance X, Y, Z	Max. of ±2.5 mm (0.09 in.)
Holding Force Fmax (EN/ISO 14119)	1,690 N
Holding Force Fzh (EN/ISO 14119)	1,300 N
Maximum output current (each outputs)	200 mA
Quiescent power consumption, locked or unlocked	2.5 W
Peak current and duration, at turn on or after lock/unlock operation	400 mA / 100 ms
Operating voltage Ue	24V DC +10% / -15% Class 2 SELV
Maximum frequency of operating cycles	0.2 Hz
Dwell time between subsequent locking/unlocking	2.5 s
Response time (Off)	100 ms first switch, 50 ms additional for each switch
Risk Time (according to IEC 60947-5-3)	100 ms
Start up time (availability)	5 s
Maximum length of a chain of switches	10 km (Dependent on cable/connection/required response time)
Utilization category (IEC 60947-5-2)	DC-13 24V 200 mA
Insulation voltage Ui (IEC 60947-1)	75V

Operating Characteristics (continued)	
Impulse withstand voltage Uimp (IEC 60947-1)	1 kV
Pollution degree (IEC 60947-1)	3
Manual (auxiliary) release	Built in
Protection class (IEC 61140)	Class II
Mechanical life	500,000 cycles
Outputs (Guard door closed and locked)	
Safety Outputs	2 x PNP, 0.2 A max / ON (+24V DC)
Auxiliary Outputs	1 x PNP, 0.2 A max / OFF (0V DC)
Environmental	
Operating temperature [C (F)]	0…+55° (+14…+131°)
Storage temperature [C (F)]	-25…+75° (-13…+167°)
Operating humidity	5…95% relative
Enclosure ingress rating	NEMA 3, 4X, 12, 13, IP66, IP67, IP69k
Shock and vibration	IEC 60068-2-27 30 g, 11 ms/IEC 60068-2-6 10…55 Hz
Hygienic	ISO 14159:2004 and EN 1672-2005, (for that part of the machine defined as "food splash area")
Washdown	Sodium Hydroxide based washdown fluids
Radio frequency / EMC	IEC 60947-5-3, FCC-1(Parts 18&15), R&TTE
General	
Materials	ABS, locking bolt and mounting bracket 304 stainless steel
Weight switch/actuator	Switch 400 g, actuator 150 g, actuator mounting bracket 60 g
Protection Type	Short-circuit, current limitation, overload, reverse polarity, overvoltage (up to 60V max.), thermal shutdown/restart

Status/Diagnostic Operating LED Indicators

The switch has two pairs of LEDs, status LEDs are green and diagnostic LEDs are red.

Power to Lock Versions	Door/Guard Status	Lock Command	OSSD Input	Lock Status	LED Status	OSSD Status
Power on and lock command off	Open or closed	Off	Off or on	Unlocked	Blinks 6 x green then solid red	Off
Lock command on and door open	Open	On	Off or on	Unlocked	Fast flash green	Off
Lock command on and door closed	Closed	On	Off	Locked	Slow flash green	Off
Lock command on and door closed	Closed	On	On	Locked	Solid green	On

Power to Release Versions	Door/Guard Status	Unlock Command	OSSD Input	Lock Status	LED Status	OSSD Status
Power on with door open	Open	Off	Off or on	Unlocked	Blinks 6 x green then 1 x blink red followed by fast flash green	Off
Power on with door closed	Closed	Off	Off	Locked	Blinks 6 x green then 1 x blink red followed by slow flash green	Off
Power on with door closed and OSSD input active	Closed	Off	On	Locked	Blinks 6 x green then 1 x blink red followed by solid green	On
Unlock command on and door closed or open	Open or closed	On	Off or on	Unlocked	Solid red	Off

Catalog Numbers for Complete Switches

440G-LZS21

a b c d

a		b		c		d	
S	Standard Coding	P	Auxiliary—Lock Status	R	Power-to-Release	A	3 m Cable
U	Unique Coding	T	Auxiliary—Door Proximity	L	Power-to-Lock	B	10 Cable
						H	M12 8-pin

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